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Summary of case reviews of Forensic Chemist, Joyce Gilchrist,
Oklahoma City Police Department Crime Laboratory

At the request of FBI, Oklahoma City and the Oklahoma City Police Department, Supervisory Special Agent (SSA) Douglas W. Deedrick, FBI Laboratory conducted a review of laboratory notes, prepared hair and fiber evidence and trial transcripts of Forensic Chemist, Joyce Gilchrist, Oklahoma City Police Department Crime Laboratory. This independent review was conducted in the Police Department Crime Laboratory using laboratory space and equipment. A total of eight (8) cases were reviewed spanning the period of 1982 to 1991, some having evidence and some having trial transcripts.

The review of the laboratory notes revealed that they were often incomplete or inadequate to support the conclusions reached by the examiner. No documentation existed that would allow the examiner to identify textile fibers associated in one of the cases. No notations were present that would indicate a confirmation or review by another qualified examiner was undertaken, especially in the cases where hair evidence linked the suspect and victim.

Five (5) of the cases reviewed had prepared glass microscope slides that could be reexamined by SSA Deedrick. The comparison microscope provided by the OCPD Crime Laboratory was found to be satisfactory for this reexamination. In the opinion of SSA Deedrick, all five cases reviewed had either errors in identification or interpretation. Hairs that had been associated to suspects and/or victims were either too limited for meaningful comparison purposes or associated incorrectly. The incorrect associations could have been resolved if a confirmation policy existed, where another examiner would independently review the associations.

In the only case where textile fibers were identified and compared, the questioned fibers did not exhibit the same microscopic characteristics as the known fibers. She compounded the examination errors by stating that in her opinion "...the person (suspect) wearing that tennis shoe had to have been associated or had to have been in the home of (the victim)

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either during the crime or after the crime occurred to have gotten those fibers on the bottom of the shoe." The use of a microspectrophotometer to compare the fiber colors would have allowed the examiner to reach a more accurate and different conclusion. Other laboratory techniques or a confirmation policy with respect to fiber associations could also have prevented the errors.

A review of trial testimony in several of the cases revealed that the examiner made statements that went beyond the acceptable limits of forensic science. The examiner stated or implied in some instances that hairs were "unique" or that it "...would be impossible not to be able to distinguish hairs from two different individuals..." These statements would improperly place too much significance on the hairs associated in the cases and leave jurors with the impression that hair associations were identity. No statements were present in any of her reports that would properly "qualify" the hair associations.

Recommendations

1. A review of all cases where the examiner associated hair and/or fiber evidence and that evidence was significant to the outcome of the trial. The hair and fiber evidence should be reviewed by a qualified examiner and determinations made regarding the possible use of mitochondrial DNA sequencing
2. The establishment and/or review of protocols and procedures pertaining to hair evidence and fiber evidence
3. The establishment of a confirmation policy on all hair associations and the inclusion of a "qualifying statement" in all reports where hairs were associated and of evidential value
4. The establishment and/or review of training programs and qualification requirements for hair and fiber examiners
5. The use of annual tests (if not already in use) to evaluate the proficiency of qualified examiners

Detailed Analysis

The following is a detailed analysis of the eight (8) cases reviewed at the OCPD Crime Laboratory:

Case #1 JEFFREY TODD PIERCE - SUSPECT;
SANDRA KAY BURTON - VICTIM;
RAPE/ADW/BURGLARY
OCPD CASE #85-132

The review included the case file consisting of the laboratory report dated August 26, 1986, laboratory notes and prepared glass microscope slides. In this case, Joyce Gilchrist identified pubic hairs microscopically like the suspect's known pubic hairs in the victim's pubic hair combings and on the victim's skirt. She also identified 28 head hairs microscopically like the suspect's known head hairs on items submitted from the victim. The pubic hair associations were examined in the Oklahoma City laboratory by SSA Deedrick and these hairs do not exhibit the same microscopic characteristics as the suspect's known pubic hairs. Several of the head hair associations were reviewed and they could not be associated with the suspect's head hair sample. All of the head hair associations that Gilchrist made in this case were not reviewed.

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The hair associations are reflected in the examiner's bench notes and the testimony appears consistent with her findings. Gilchrist does state in her testimony that the blood type results and the hair results are linking factors in the case, but does not offer that these results are independent. The extremely high number of "matching" head hairs is questionable, considering the quality of the examination of the pubic hairs and the head hairs reviewed.

Case #2 HAROLD GENE WEATHERLY - SUSPECT;
ESTER OLANDA MOCTEZUMA - VICTIM;
ASSAULT
OCPD CASE #84-12

The review included a laboratory report dated May 11, 1984, laboratory case notes and trial transcript. In this case, Gilchrist did not identify any hairs consistent with the

The case file contains very little information regarding the hair associations in this case. A trial transcript and laboratory slides were not available for review.

Case #4 DAVID J. BRYSON - SUSPECT;
 THERESA TAYLOR - VICTIM;
 RAPE
 OCPD CASE #82-336

The laboratory case file, laboratory notes, laboratory report dated January 28, 1983, trial transcript and prepared slides were examined by SSA Deedrick. In this case, Gilchrist identifies a pubic hair like the suspect's known pubic hairs on the victim's skirt and three (3) head hairs like the suspect's known head hairs on/in items from the victim and scene.

The pubic hair had been mailed to Lab Corp of America in November, 1997 and a portion of the hair was removed for testing. The remaining portion was examined by SSA Deedrick in the OCPD laboratory. The hair consists of the distal portion of a body hair of undetermined racial origin. This hair does not exhibit the same microscopic characteristics as the known pubic hairs of the suspect or victim.

The questioned head hairs identified with the suspect do not exhibit the same microscopic characteristics as the known head hairs from the suspect. It is noted that the known head hair samples from the victim and suspect are limited.

In the trial transcript, Gilchrist states ... "I would think it would be impossible not to be able to distinguish hairs from two different individuals if that's what you're saying." This statement is consistent with her saying that she has never seen two different people who have hairs with the same microscopic characteristics. By saying this, she implies that hairs are "unique" to an individual, and misrepresents the science of hair comparisons. The defense attorney asks Gilchrist if he went outside the courtroom and pulled two head hairs from his head and presented them to her, what would her conclusion be. She states ... "There would be variations in two different hairs off your head, but I would be able to say they came from the same source." This again overstates the conclusions that can be reached from hair comparisons.

suspect's known hairs on items from the victim and crime scene. She did, however, identify 23 textile fibers consistent with the victim's clothing and crime scene in mud adhering to the suspect's shoe.

She states in the trial transcript, with respect to the fiber associations, "...My opinion is that the person wearing that tennis shoe had to have been associated or had to have been in the home of Moctezuma at 801 S.E. 41st either during the crime or after the crime occurred to have gotten those fibers on the bottom of the shoe." She further describes the manner in which the fibers got on the shoe, which is beyond this examiner's expertise.

The presence of this many fiber associations between the suspect's shoe and the crime scene would have been a significant factor had the fibers actually "matched" the fibers from the scene. The questioned fibers were compared by SSA Deedrick in the OCPD laboratory. None of the synthetic fibers associated by Gilchrist actually "match" the fiber samples from the scene and the blue "denim" cotton fibers matched by Gilchrist are insignificant. It is not known if the OCPD laboratory used a polarizing microscope at this time and the laboratory did not have a microspectrophotometer to compare the colors of the fibers. It was obvious, however, that the synthetic fibers did not exhibit the same microscopic characteristics.

The examiner's laboratory notes were very limited in the description of the fiber types and the conclusions were not supported. It is not known how the examiner identified the synthetic fibers.

Gilchrist also states, with respect to hair examinations, "...characteristics that are particular to that individual and unique to that particular individual." This overstates the significance of hair comparisons.

Case #3 JOE BERRY, GERMAIN PARKER AND WILLIAM ERVIN - SUSPECTS;
 MARGARET SHARPE AND GLENDA MILLER - VICTIMS;
 SEXUAL ASSAULT
 OCPD CASE #91-228

The laboratory case file that included a laboratory report and notes was reviewed. Gilchrist identifies a pubic hair like the knowns from BERRY in debris from MILLER and a pubic hair like the knowns from MIKE ROSS on shorts from a trash can. The identity of MIKE ROSS could not be determined from the review.

Case #5 CURTIS E. MCCARTY - SUSPECT;
PAMELA WILLIS - VICTIM;
HOMICIDE
OCPD CASE #82-438

This consisted of a large case file, several laboratory reports, laboratory case notes and trial transcript. No prepared slides were located. In this case, Gilchrist identifies 16 head hairs like the suspect's known head hairs on items from the victim and scene. One of these head hairs was recovered from the victim's chest wound. She also identifies a pubic hair like the pubic hairs from the suspect on the chest of the victim. It should be pointed out that the suspect had previously been at the victim's home on other occasions prior to the homicide.

This case is interesting because Gilchrist had originally eliminated the suspect based on hair comparisons. After MCCARTY became a suspect, and after another known head hair sample had been obtained (3 years later), questioned hairs from the scene were identified with MCCARTY.

At the trial, Gilchrist was asked ... "For all you know, the hairs you testified about, including those you say are consistent with C E MCCARTY, were left in that house days before or possibly even weeks before this incident." She replied "It's incorrect." She was further asked "So you don't know, do you, whether any of these hairs are actually associated with the events in this case, is that right?" She replies "That is incorrect." These answers imply that the "matched" hairs are associated with the homicide, which can not be supported by the science.

The glass microscope slides prepared by Gilchrist could not be located for review.

Case #6 ALVIN PARKER - SUSPECT;
GARY WARD - VICTIM;
HOMICIDE
OCPD CASE # 85-036

This case involves the shooting of a police officer and Gilchrist compared hairs from the victim to the known head hairs from the suspect. SSA Deedrick reviewed the case file that consisted of a laboratory report dated February 10, 1986, case notes and prepared glass microscope slides. No trial transcript was available for review.

Gilchrist identifies ten (10) head hairs like the suspect's known head hairs on items from the victim. Her notes reflect the associations, however, upon review by SSA Deedrick, the hairs found on the glass microscope slides do not "match" the known head hairs of the suspect. The questioned hairs are fragmentary and either are not suitable for meaningful comparisons or dissimilar to the suspect's known hairs. The associations fall far below the acceptable limits of the science of hair comparisons.

Case #7 DAVID LEE DODSON - SUSPECT;
 TOREY CARPENTER - VICTIM;
 RAPE
 OCPD CASE #83-100

The case file that included a laboratory report dated June 2, 1983, laboratory notes and prepared glass microscope slides were reviewed. No trial transcript was available for review. In this case, the victim was allegedly kidnaped by the suspect and taken to his apartment, where he assaulted her.

Gilchrist identifies a number of limb hairs and chest hairs microscopically like the suspect's known hair samples on the clothing of the victim. These types of hairs are not generally accepted by the scientific community as suitable for meaningful comparisons. She does, however, identify a pubic hair on the victim's socks as consistent with the known pubic hairs of the suspect's girlfriend. SSA Deedrick confirmed that association in the OCPD laboratory. She also identifies a head hair from the victim's socks as consistent with the suspect's known head hairs. This hair could not be associated by SSA Deedrick in the OCPD laboratory.

Gilchrist also identifies an orange "bilobal" fiber from the victim's socks as consistent with a carpet sample from the suspect's residence. This "trilobal" carpet fiber "match" was confirmed by a visual comparison by SSA Deedrick.

Case #8 RONALD LOTT - SUSPECT;
 ZELMA CUTLER AND ANNA FOWLER - VICTIMS;
 HOMICIDE

In this case a cursory review of the case file and laboratory notes reveals that Gilchrist identified two head hairs microscopically like the known head hairs of ROBERT MILLER on a

flat sheet from the scene. She also identifies rottweiler dog hairs. No glass microscope slides could be reviewed because questioned hairs were submitted for DNA testing. The trial was pending in this matter.